

TOUR INTO PAINTING
System Design for Virtual Exhibition of Chinese Hand-Scroll Painting

Résumé

Virtual reality is commonly used for exhibitions, allowing access to remote or particularly fragile artworks. Existing virtual exhibition systems create an immersive experience within the exhibition space. However, two deficiencies in the exhibition forms of Chinese Hand-Scroll Paintings (CHSP) have been noted. Firstly, these paintings are considered pure images and therefore displayed as completely unrolled in the glass boxes, and thus cannot be manipulated in the original scrolling method. Secondly, the essential aesthetic experience of the "recumbent tour" in painting is not intuitively interpreted to the audience. This thesis proposes the exploration of a virtual exhibition system to address these deficiencies.

We have adopted two strategies to complement these deficiencies. For the first one, we proposed a simulation to recreate a virtual CHSP that will be animated with the interactive features of a CHSP. For the second one, we developed a protocol that suggests the aesthetic experience of the CHSP by creating the diegetic world of a CHSP and driving the VR user to travel in this world.

To implement these strategies, we studied the different aspects of the CHSP and particularly the aesthetic experience it produces in the context of classical Chinese aesthetics. We split the generation of this experience into two transformations: the transformation from the image in the unrolled frame to the diegetic world and the transformation from the viewer's focus point on the CHSP to his viewpoint in the diegetic world. We combined the theories of visual psychology and the visual structure of CHSP to translate the transformations into geometrical ones. Dedicated algorithms have been developed to accompany these transformations. These algorithms prepared in the format of script modules were integrated into the virtual exhibition system using Blender and the Unity platform.

The system is presented as a VR application that includes an interactive CHSP that can be manipulated according to the original principles. In a synchronous way, the VR user will be moved according to his focus point on the virtual CHSP, and then, an encompassing, random diegetic world will be built.

Mots-clés : Virtual exhibition, Virtual Reality, Chinese Hand-Scroll Painting, Visual structure, Aesthetic experience